

5-YEAR REVIEW OF FIRE ON THE
MOOSE CREEK RANGER DISTRICT, SELWAY-BITTERROOT WILDERNESS

By

James Saveland

Richard Hildner

Periodic review of fire management programs provides necessary feedback to improve the programs. The 1983 season marked the fifth full year of the wilderness fire management program on the Moose Creek District. The purpose of this paper is to document results of the past five seasons and to pass along information that has been learned about wilderness fires. The 5-year review includes a summary of fire occurrence, the method of tracking fires, some problems that have arisen, a discussion on meeting objectives, and a look at the future.

Summary

In the past five years there have been 155 fires that have burned a total of 26,551 acres (Table 1). This results in a 5-year mean of 31 fires per year and 5310 acres burned per year, which is slightly less than one percent of the District. The fire occurrence rate is just below the 20-year average of 35 fires per year. Means are generated for comparison purposes only and should not be used for expected values due to the inherent variability between years. In the last five years there has been as few as two fires in 1980 and as many as 64 fires in 1981. The potential for more fires is present for 134 fires occurred in 1961.

Forty-eight of the 155 fires, or approximately 31 percent, have been prescription fires. Eleven percent of all fires (17) have escaped initial attack and required an Escaped Fire Situation Analysis, which resulted in a decision to confine the fires to the wilderness with surveillance as the appropriate suppression response. Ten fires (6 percent) have accounted for 98 percent of the burned acres, with 8 of the 10 fires occurring in 1981. There have been only seven person-caused fires.

Fire danger, as expressed by the energy release component curves, has shown four years of low to moderate fire danger (below the 80th percentile) and one year, 1979, of high fire danger (above the 80th percentile). The energy release component peaked earlier than normal in 1979 with a drop during the traditional peak period in mid-August. Even higher fire danger years, such as 1967, can be expected in the future. Even though the energy release component curve was well below the 80th percentile level in 1981, several large fires occurred.

The prescribed fire load on the District has been the main reason for suppression (Appendix I). The comfort level can be defined as the amount of active prescribed fires that the District FMO, District Ranger, Fire Staff Officer, Forest Supervisor and Regional Office feel comfortable managing. This level has so far reached 12 fires in a hot year and is expected to increase with further experience.

Table 1. Summary of prescribed fires and wildfires, 1979-1983.

	Prescribed Fires		Wildfires				
	Number	Acres Burned	Number	Acres Burned			
1979	12	16,313	46	73			
1980	2	0	0	0			
1981	11	4,360	53	5,073			
1982	13	90	5	0			
1983	<u>10</u>	<u>1</u>	<u>3</u>	<u>641</u>			
Total	48	20,764	107	5,787			
	Class A	Class B	Class C	Class D	Class E	Class F	Class G
Prescribed	37	4	4	0	1	1	1
Wildfire	67	23	10	0	5	2	0

Tracking

Beginning with the first prescribed fire, the Moose Creek District has struggled with the question of how to keep track of ongoing fires. The prescribed fire tracking problem is compounded by those fires which require suppression action. The system of map pins, names and numbers in use in 1979 has evolved into the locator system currently in use.

In 1979 each fire was duly recorded in the dispatch log and the fire name, number and location were noted on a District map with distinctively colored map tacks. Tacks were color-coded to reflect fire status; wildfire, prescribed fire, active-inactive, controlled, out, etc. If a prescribed fire developed significantly, a separate log was kept. The system proved adequate in 1979 and 1980. It took a fire bust in August of 1981 to overload the system. With more than 30 fires resulting from a single storm, several of which rapidly emerged as major fires, and several prescribed fires currently being monitored, system failures became readily apparent. Resource locators used to keep track of suppression forces soon began doubling as fire status boards.

From rather crude beginnings, the resource locator became a record-keeping device. The fire name was written on the locator and an individual log on each fire was located in the pocket under the fire name. Meanwhile the fire map was still sprouting colored pins as a graphic display of the ever-changing situation.

From here it was only a short step to a more formalized approach. Recording forms borrowed from the Blue River District, Willamette National Forest, were

modified and adapted to our use. This is how the system works. The initial fire report is taken on a Fire Action Record Form (Appendix II). All subsequent communication regarding the fire is also recorded on this form. The form is filed in the appropriate location in the resource locator and is easily retrieved when additional information is to be added or status reports are requested. All of the information for a single fire is in one location, eliminating a cumbersome search through a log book.

Three categories of fire are used: Prescribed Fire - Active, Prescribed Fire - Inactive, and Wildfire. By using two categories of prescribed fire, a visual indication of fire load and potential is apparent. As fires are declared out they are filed in the resource locator under Wildfire - Out or Prescribed Fire - Out.

The advantages to this system are that the information for tracking wildfire and prescribed fire are in one location and at the same time fire load and status are graphically displayed. A single log is kept on each fire which facilitates data entry and retrieval. All information for completion of the individual fire report is also in a single, readily-identifiable location. A District map with pins for going and out fires is still maintained, but it is for general information purposes only. The system is also easily expanded by adding an additional resource locator.

Problems

One of the problems that was not identified in the original fire plan for the Moose Creek District is the potential for damage to system trails. The problem of fire and trails has both long- and short-term implications. In the short-term water bars and log cribbing have burned out. Trees falling across steep trails have often taken a notch out of the trail as have boulders loosened by the fire. Rocks in the trail and trees across it are a continual problem during and immediately after a fire. Notifying the using public of trail conditions during and immediately after a fire has also been a problem.

In the long-term, erosion will be accelerated, particularly if drainage structures are not repaired or replaced immediately after the burn. An increase in windfalls can be expected for years following fire activity.

Both the short- and long-term impacts have costs associated with them which were in the original fire plan for the Moose Creek District. Increased trail maintenance costs have resulted from the additional time spent logging out the Pettibone and Bear Creek trails in the years following the Independence Fire. Moose Creek has already experienced 10-person days of additional trail maintenance (short-term) from the Cascade Fire of 1983 and these costs will increase with the onset of wet weather.

Wilderness prescribed fire should not be curtailed because of these costs, but they should be a recognized cost of doing business. Because trail maintenance budgets are limited, increased costs from prescribed fire will likely result in a shift of maintenance priorities. Some trails may be closed either as a direct or indirect result of our prescribed fire policy. It would be beneficial to initiate studies to quantify the effects of prescribed fire on trail maintenance costs.

Smoke management concerns continue to be an integral part of the Moose Creek fire plan. The first big test was the Independence Fire of 1979. While intrusions into the Bitterroot Valley and Missoula area were light and infrequent, onsite impacts were more severe. Air traffic in the Selway corridor was at times restricted or terminated due to smoke decreasing visibility. Even though visibility was limited from time to time, no adverse comments were received from the public. A closure of the Moose Creek airfield for any length of time would certainly have elicited an unfavorable public response.

The situation in 1981 was complicated by the existence of several major wildfires in excess of 300 acres. Many of these fires were on the Bitterroot Divide and smoke borne by westerly winds made a significant intrusion into the Bitterroot Valley. No formal complaints were received but informal communications revealed some public concern, particularly from those with respiratory problems. Interestingly, smoke from prescribed fires, which were well within the interior of the District, did not appear to materially contribute to the smoke load.

The 1982 and 1983 fire seasons did not test the smoke management concerns of the plan. It is evident, however, that a key ingredient to the management of smoke from prescribed fires is public involvement and awareness. Keeping the public informed as to what is happening is necessary so that occasional intrusions will not be greeted with disdain. Prescribed fires in wilderness have and will continue to exceed their prescriptions. Moose Creek is no exception. Managers must recognize this fact and be prepared ahead of time to deal with this contingency. An escape will test any plan's strengths and weaknesses and the commitment of management to maintaining the integrity of a prescribed fire plan.

The Cascade Fire of 1983 is a case in point. At the time of discovery it was recognized that while the fire had little potential to grow large (over 1,000 acres), the possibility that it would soon cross from one zone to another and, therefore, be out of prescription was quite high. From the onset an aggressive public information campaign was initiated. Local and Regional media were kept informed as well as the Governor's office and other elected officials.

The scenario for the Cascade Fire was as follows:

On August 23, 1983, about 2200, a lightning storm started two fires in Cascade Creek, a side drainage of the Selway River system. The fires were picked up by the afternoon patrol flight on August 24 and were determined to be within the prescription set forth in the Moose Creek Fire Management Plan. Supervisor Kovalicky approved prescription fire status for the Cascade Fire at about 1600 on August 24.

At the time of discovery, the District dispatched a monitor to the fire site to gather intelligence and take suppression action, if necessary, to protect Ballinger Creek trail bridge. On August 26, this suppression action became necessary and the bridge was protected from the fire by burning out fuels immediately adjacent to the bridge.

On August 28, the fire burned out of the plan's Interior Zone and into a boundary zone in the Power Creek drainage. At this point, the fire left prescription and, while still not threatening the boundary, the Cascade Fire was declared out of prescription. At 0800 on Monday, August 29, Supervisor Kovalicky changed the status from prescription fire to wildfire.

The decision to call it a wildfire necessitated the completion of an Escaped Fire Situation Analysis. This was done with a final decision to confine the fire to the wilderness with surveillance as the only necessary suppression action.

There was some concern that the fire could eventually escape the wilderness. To meet this contingency, the Forest Class II team was brought in for one day to prepare a contingency plan should an escape occur. This served two purposes. A viable plan for containment was developed and the fire team had a real fire to work with as a training exercises. It also made for good public relations.

Forecasted fire weather never materialized and the fire ceased to grow after covering 640 acres.

What should be clear from this is that a carefully prepared plan will, in most cases, not unduly restrict the use of prescribed fire. In this case the fire burned from the Interior Zone into a more restrictive zone. This does not mean that the fire should have been suppressed at the onset but rather managers should recognize that it will likely be out of prescription and that they must be prepared for that eventually. This would indicate the need for areas of sufficient size or physical characteristics which will permit adequate leadtime for the preparation of full or partial suppression strategies.

In any case, it is incumbent upon managers to maintain the integrity of their fire plans and follow the guidelines they have established. To try and fine tune the plan while the smoke is in the air is to jeopardize not only their own program but every program across the country.

Objectives

An inherent part of any fire plan is an evaluation to determine the degree of success in meeting objectives. The objective of wilderness fire management plans is to let fire more nearly play its natural role in wilderness. How close has the Moose Creek District come to letting fire play its natural role?

Translating the objective into linear programming language to provide a means of quantification yields the following maximization function: to maximize the area that would be burned each year by naturally occurring lightning fires without man's intervention. In other words, the intent is to maximize burned acres from lightning fires by minimizing the suppression response. Several constraints are placed on the objective function such as ensuring visitor

safety, confining fire to the wilderness, protecting private property, protecting threatened and endangered species, minimizing off-site impacts, protecting permitted uses, maintaining preparedness levels, and the ever-present budget constraint. The constraints may or may not be binding for a particular wilderness, depending on size and shape of the wilderness, visitor use patterns, fire regimes, etc.

The two items that measure a plan's effectiveness in meeting the objective function are: number of acres burned compared to the historical level, and percent of fires suppressed. Approximately one percent of the Moose Creek District has burned on an annual average in the past five years, whereas the historical level before suppression is estimated at about two percent. Thus the optimum level of burned acres would be a long-term average of around 10,000 acres per year. Of course, there would be large variations between individual years. In the past five years, 58 percent of the fires have been put out.

In areas characterized by stand replacement fires, age-class distributions at the landscape level offer a means to evaluate the effectiveness of the plan in maintaining negative exponential distributions. No age-class distribution studies have been attempted in Moose Creek. All of the large fires include areas of stand replacement.

There are other criteria such as safety record, public response, wildlife populations, photo points, program costs, and subjective judgments to determine if the constraints have been exceeded. There have been no safety incidents and public response has generally been favorable. Several photo points have been established on the large fires. Pictures will be taken once a year for five years and then once every five years to document succession. A study is currently underway investigating the applicability of remote sensing in quantifying fire intensities. No indepth analysis on changes in program costs have been made. Savings have been realized by monitoring fires instead of putting them out. There have been substantial savings from implementing the escaped fire situation analysis. There have been increased costs resulting from taking suppression actions on prescribed fires. These have ranged from small costs such as burning out to protect bridges, to large costs associated with protecting Selway Lodge during the Independence fire.

Future

Fire plans should not be static. They should be responsive to new information and experiences. The Moose Creek plan is no exception. By field season of 1984 a revised plan will be in effect. Revisions will include liberalizing some constraints where zones adjoin planned areas that have recently been approved, elimination of the IC/ERC index in favor of the ERC as a prescription constraint, and changes in the decision matrix to make it agree with new Forest Service policy.

Once this is complete, we anticipate being able to incorporate all of the adjoining plans into a single operating plan for the Selway-Bitterroot Wilderness. This will be done so as not to dilute the uniqueness of any individual plan, but to allow all fire managers to manage their areas of responsibility with a single operating plan knowing their decisions are compatible with adjoining units.

A third amplification will be to add an extensive brush field outside wilderness to the existing Moose Creek plan. Once under a plan, wilderness boundary constraints can be relaxed and the natural role of fire extended beyond the wilderness boundary. The area in question encompasses approximately 88,900 acres now managed for big game habitat.

In conclusion, the Moose Creek District is off to a good start, but there is a long way to go before fire assumes its full role in perpetuating the wilderness resource. The next five years should see a decrease in the percent of fires suppressed and an increase in acres burned by prescription fires.

Appendix I: Fire Occurrence 1979-1983

Appendix II: Fire Action Record

MOOSE CREEK FIRES 1979

S.O. #	Fire Name	Date Start Out		Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status Pres. Wild		ERC @ Start	Remarks
24	Independence	7/4	12/1	151	T31N, R14E, S 8	Interior	G	16300	X		26	Went out
23	Legend Lake	7/4	8/15	43	T33N, R10E, S34	Crags	A	Spot	X		26	Went out
22	Bluff Creek	7/4	7/5	2	T31N, R10E, S16	Lower Selway	A	Spot		X	26	Suppressed-Boun.Zone
54	Mink #1	7/5	7/5	1	T31N, R10E, S13	Lower Selway	A	Spot		X	24	Suppressed-Boun.Zone
55	Mink #2	7/5	7/5	1	T31N, R11E, S18	Bilk Mountain	A	Spot		X	24	Suppressed-Boun.Zone
60	Lizard Lake	7/5	8/15	42	T33N, R11E, S 7	Crags	A	Spot	X		24	Went out
61	Grotto Creek #1	7/5	8/15	42	T34N, R11E, S20	Crags	A	Spot	X		24	Went out
56	Three Links #1	7/5	8/15	42	T33N, R10E, S22	Crags	A	Spot	X		24	Went out
57	Three Links #2	7/5	8/15	42	T33N, R10E, S22	Crags	A	Spot	X		24	Went out
62	Rhoda Point #1	7/5	8/15	42	T34N, R11E, S16	Crags	A	Spot	X		24	Went out
63	Rhoda Point #2	7/5	8/15	42	T34N, R11E, S21	Crags	A	Spot	X		24	Went out
59	Three Links Bridge	7/5	7/7	3	T32N, R11E, S28	Interior	A	Spot		X	24	Suppressed-Fireload in Mgt.Area
58	Archer Mountain	7/5	7/8	4	T30N, R12E, S26	Archer Mountain	A	Spot		X	24	Suppressed-Boun.Zone
64	Frisco Saddle	7/5	7/12	8	T33N, R11E, S18	Crags	A	Spot		X	24	Suppressed-Fireload in Mgt.Area
87	Bell Point	7/4	8/1	28	T33N, R14E, S 7	Gateway Peaks	B	1		X	26	Suppressed-Boun.Zone
150	Trout Peak	7/19	7/22	4	T33N, R13E, S32	Interior	A	Spot		X	47	Suppressed-Fireload in Mgt.Area
151	Crew Creek	7/19	7/21	3	T33N, R13E, S29	Interior	A	Spot		X	47	Suppressed-Fireload in Mgt.Area
265	Cow Creek #1	7/17	7/21	3	T32N, R13E, S34	Interior	A	Spot		X	47	Suppressed-Fireload in Mgt.Area
152	Dead Elk Creek	7/19	7/20	2	T34N, R15E, S24	Bitterroot Div.	A	Spot		X	47	Suppressed-Fireload in Mgt.Area
264	Elk Ridge	7/19	7/24	6	T31N, R14E, S 9	Interior	C	15		X	47	Suppressed-Fireload in Mgt.Area
263	Dead Elk Point	7/19	7/23	5	T34N, R15E, S24	Bitterroot Div.	B	1		X	47	Suppressed-Fireload in Mgt.Area
262	Lizard Creek	7/4	7/24	21	T34N, R11E, S 4	Interior	B	1		X	26	Suppressed-Fireload in Mgt.Area
261	Cow Creek #2	7/19	7/20	2	T32N, R13E, S34	Interior	A	Spot		X	47	Suppressed-Fireload in Mgt.Area

MOOSE CREEK FIRES 1979

S.O. #	Fire Name	Date Start Out	Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status Pres. Wild	ERC @ Start	Remarks
260	Paradise Creek	7/19 7/28	10	T31N, R15E, S 3	Bitterroot Div.	A	Spot	X	47	Suppressed-Fireload in Mgt.Area
259	Otter Butte	7/28 7/29	2	T31N, R10E, S10	Lower Selway	A	Spot	X	54	Suppressed-Boun.Zone
258	Buck Lake	7/28 7/29	2	T31N, R11E, S32	Bilk Mountain	A	Spot	X	54	Suppressed-Boun.Zone
257	Wolf Point	7/28 7/29	2	T32N, R11E, S32	Interior	A	Spot	X	54	Suppressed-Fireload in Mgt.Area
256	Eagle Rock	7/28 7/30	3	T31N, R13E, S26	Interior	A	Spot	X	54	Suppressed-Fireload in Mgt.Area
255	Patrol Point	7/28 7/30	3	T31N, R13E, S 7	Interior	A	Spot	X	54	Suppressed-Fireload in Mgt.Area
254	Dog Creek Point	7/28 7/31	4	T32N, R14E, S23	Interior	A	Spot	X	54	Suppressed-Fireload in Mgt.Area
253	Gateway Peak	7/28 7/31	4	T34N, R14E, S31	Gateway Peaks	A	Spot	X	54	Suppressed-Boun.Zone
285	Dead Elk #3	7/28 8/8	12	T34N, R16E, S19	Bitterroot Div.	C	22	X	54	Suppressed-Fireload in Mgt.Area
252	East Peak Lake	7/28 8/6	10	T33N, R10E, S14	Crags	B	2	X	54	Suppressed-Fireload in Mgt.Area
286	Blodgett Lake	7/28 8/13	17	T34N, R16E, S33	Bitterroot Div.	B	4	X	54	Suppressed-Fireload in Mgt.Area
126	Gardner Trail	7/28 8/16	20	T31N, R14E, S20	Interior	B	5	X	54	Suppressed-Fireload in Mgt.Area
251	Crew Creek #2	8/15 8/16	2	T33N, R13E, S28	Interior	A	Spot	X	46	Suppressed-Fireload in Mgt.Area
250	Double Creek	8/15 8/16	2	T33N, R13E, S 8	Interior	A	Spot	X	46	Suppressed-Fireload in Mgt.Area
249	Archer Mountain #2	8/16 8/17	2	T30N, R12E, S23	Archer Mountain	A	Spot	X	49	Suppressed-Boun.Zone
284	Two Lakes	8/15 9/1	18	T34N, R11E, S19	Barren Ridge	A	Spot	X	46	Went out
237	Indian Peak	8/16 8/21	6	T30N, R11E, S 8	Bilk Mountain	A	Spot	X	49	Suppressed-Boun.Zone
248	Lone Pine Creek	8/21 8/23	3	T32N, R12E, S20	Interior	A	Spot	X	45	Suppressed-Fireload in Mgt.Area
247	Otter Butte #2	8/21 8/22	2	T31N, R10E, S10	Lower Selway	A	Spot	X	45	Suppressed-Boun.Zone
246	Mink Creek	8/21 8/22	2	T31N, R11E, S 3	Interior	A	Spot	X	45	Suppressed-Fireload in Mgt.Area
245	Seminole Ranch	8/21 8/22	2	T33N, R12E, S35	Interior	A	Spot	X	45	Suppressed-Private Prop.-Suppression Zone 2

MOOSE CREEK FIRES 1979

S.O. #	Fire Name	Date Start Out		Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status Pres. Wild		ERC @ Start	Remarks
244	Bearwallow	8/21	8/23	3	T32N, R11E, S14	Interior	A	Spot		X	45	Suppressed-Fireload in Mgt.Area
287	Cub Lake	8/23	9/1	10	T31N, R16E, S20	Bitterroot Div.	A	Spot	X		41	Went out
243	Highline	8/23	8/26	4	T31N, R11E, S19	Bilk Mountain	A	Spot		X	41	Suppressed-Fireload in Mgt.Area
242	Lit. Copper Butte	8/23	8/25	3	T31N, R10E, S36	Lower Selway	A	Spot		X	41	Suppressed-Boun.Zone
241	Moose Creek Ranch	8/23	8/26	4	T33N, R13E, S30	Interior	A	Spot		X	41	Suppressed-Fireload in Mgt.Area
240	Goat Creek	8/23	8/28	6	T30N, R13E, S 8	Interior	A	Spot		X	41	Suppressed-Fireload in Mgt.Area
239	Saddle Creek	8/26	8/28	3	T33N, R11E, S33	Interior	A	Spot		X	38	Suppressed-Fireload in Mgt.Area
238	Log Creek	8/27	8/28	2	T33N, R12E, S19	Interior	A	Spot		X	38	Suppressed-Fireload in Mgt.Area
288	Fawn Lake	8/23	9/1	10	T31N, R11E, S29	Bilk Mountain	A	Spot	X		41	Went out
289	Wahoo	8/30	9/15	17	T33N, R15E, S33	Bitterroot Div.	C	13	X		30	Went out
221	Moose Ridge	9/10	9/11	2	T32N, R12E, S 9	Interior	A	Spot		X	30	Suppressed-Per.caused
230	Moose Lake	9/19	9/26	8	T33N, R16E, S 7	Bitterroot Div.	B	4		X	36	Suppressed-Per.caused
227	Mink Creek	9/18	9/23	6	T31N, R11E, S 3	Interior	B	2		X	35	Suppressed-Per.caused
231	Running Creek	9/21	9/25	5	T29N, R13E, S 6	Archer Mountain	C	16		X	35	Suppressed-Per.caused.

12 Prescribed Fires 16,313 Acres
46 Wildfires 73 Acres

MOOSE CREEK FIRES 1980

S.O. #	Fire Name	Date		Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status		ERC @ Start	Remarks
		Start	Out						Pres.	Wild		
11	Pack Creek	7/1	7/3	4	T31N, R11E, S13	Interior	A	Spot	X		12	Went out
40	Four-Up	9/18	9/21	4	T32N, R12E, S10	Interior	A	Spot	X		6	Went out
								2 Prescribed Fires		0 Acres		
								0 Wildfires		0 Acres		

MOOSE CREEK FIRES 1981

S.O. #	Fire Name	Date Start Out		Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status Pres. Wild		ERC @ Start	Remarks
129	Indian Lake	8/24	8/29	6	T33N, R14E, S35	Bitterroot Div. B		2		X	34	Suppressed-RO Ban. Retardant
130	Divide #2	8/24	10/12	50	T33N, R16E, S28	Bitterroot Div. F		1270		X	34	Suppressed-RO Ban. Surveillance.
131	Moe Lake	8/24	10/12	50	T33N, R15E, S22	Bitterroot Div. B		5		X	34	Suppressed-RO Ban. Surveillance.
132	Spruce Lake	8/24	10/12	50	T32N, R16E, S19	Bitterroot Div. C		80		X	34	Suppressed-RO Ban. Surveillance.
31	Power Creek #1	6/30	7/2	3	T32N, R10E, S26	Lower Selway	A	Spot		X	12	Suppressed-Boun.Zone
32	Power Creek #2	7/6	7/10	5	T32N, R10E, S24	Interior	A	Spot	X		10	Went out
33	Goat	7/17	9/1	16	T30N, R12E, S 3	Interior	A	Spot	X		18	Went out
34	Elk	7/17	9/1	16	T31N, R12E, S36	Interior	A	Spot	X		18	Went out
35	Wyllies Ridge	7/17	9/1	16	T31N, R12E, S26	Interior	A	Spot	X		18	Went out
36	Maple	7/18	10/12	87	T33N, R13E, S11	Interior	C	95	X		17	Went out
37	Ten Foot	7/18	7/18	1	T34N, R13E, S13	Bailey Mountain	A	Spot	X		17	Went out
38	Butte	7/18	7/22	5	T31N, R10E, S25	Lower Selway	A	Spot	X		17	Went out
39	Mink	7/18	9/1	46	T31N, R11E, S 9	Interior	A	Spot	X		17	Went out
48	B I	7/28	7/29	2	T33N, R11E, S23	Crags	A	Spot		X	26	Suppressed-Fireload in Mgt.Area
56	Log Ridge	7/24	7/28	5	T33N, R12E, S18	Interior	A	Spot		X	26	Suppressed-Fireload in Mgt.Area
57	Crew Creek	7/24	7/29	6	T33N, R13E, S20	Interior	B	2		X	26	Suppressed-Fireload in Mgt.Area
58	4S	7/24	7/26	3	T32N, R12E, S 2	Interior	A	Spot		X	26	Suppressed-Moose Cr. Suppression Zone 2
59	Squaw	7/24	10/12	81	T32N, R14E, S15	Interior	E	645	X		26	Went out
60	Halfway	7/24	7/27	4	T33N, R12E, S33	Interior	A	Spot		X	26	Suppressed-Fireload in Mgt.Area
61	Meeker Ridge	7/24	10/26	95	T32N, R12E, S18	Interior	F	3600	X		26	Went out
62	Fitting Ridge	7/26	7/30	5	T33N, R13E, S17	Interior	B	1		X	25	Suppressed-Fireload in Mgt.Area
63	Double Creek	7/27	7/28	2	T33N, R13E, S 4	Interior	B	1		X	26	Suppressed-Fireload in Mgt.Area

MOOSE CREEK FIRES 1981

S.O. #	Fire Name	Date Start Out		Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status Pres. Wild		ERC @ Start	Remarks
64	High Spring	7/27	7/30	4	T33N, R11E, S15	Interior	A	Spot		X	26	Suppressed-Fireload in Mgt.Area
67	M.C.	8/2	8/20	19	T33N, R14E, S16	Interior	A	Spot	X	X	29	Was a prescribed fire, later suppressed. Mgt.decision.
68	Scout	8/1	8/3	3	T32N, R10E, S 1	Interior	A	Spot		X	28	Suppressed-Fireload in Mgt.Area
73	Battle	8/4	8/9	6	T34N, R14E, S35	Gateway Peaks	B	3		X	30	Suppressed-Fireload in Mgt.Area
85	Dead Elk	8/15	8/18	4	T34N, R15E, S25	Bitterroot Div.	B	3		X	34	Suppressed-Fireload in Mgt.Area. Retardant.
87	Bitch Creek	8/14	8/16	3	T32N, R12E, S36	Interior	A	Spot		X	34	Suppressed-Fireload in Mgt.Area
88	Crow Creek	8/14	8/16	3	T31N, R13E, S23	Interior	A	Spot		X	34	Suppressed-Fireload in Mgt.Area
89	Footstool	8/15	8/17	3	T34N, R15E, S28	Bitterroot Div.	A	Spot		X	34	Suppressed-Fireload in Mgt.Area
90	Blackbird	8/15	8/16	2	T31N, R13E, S36	Interior	A	Spot		X	34	Suppressed-Fireload in Mgt.Area
133	Jeanette Mountain	8/24	8/30	7	T34N, R15E, S15	Bitterroot Div.	B	5		X	34	Suppressed-RO Ban
134	Diamond Lake	8/24	10/12	50	T32N, R16E, S19	Bitterroot Div.	B	5		X	34	Suppressed-RO Ban. Surveillance.
135	Rock Point	8/24	10/12	50	T32N, R15E, S10	Bitterroot Div.	C	25		X	34	Suppressed-RO Ban. Surveillance.
136	Bitterroot Divide	8/24	10/12	50	T33N, R16E, S27	Bitterroot Div.				X	34	Burned together w/ Divide #2
137	Pettibone Ridge	8/24	8/27	4	T32N, R14E, S29	Interior	A	Spot		X	34	Suppressed-RO Ban
138	Cox Creek #3	8/24	10/12	50	T34N, R15E, S32	Bitterroot Div.	C	20		X	34	Suppressed-RO Ban. Surveillance.
139	Gateway #2	8/24	8/28	5	T34N, R14E, S25	Gateway Peaks	B	1		X	34	Suppressed-RO Ban
140	Archer Point	8/24	8/27	4	T30N, R13E, S17	Archer Mountain	B	1		X	34	Suppressed-RO Ban
141	Boundary	8/24	10/12	50	T34N, R15E, S24	Bitterroot Div.	E	300		X	34	Suppressed-RO Ban. Surveillance.

MOOSE CREEK FIRES 1981

S.O. #	Fire Name	Date Start Out	Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status Pres. Wild	ERC @ Start	Remarks
92	Square Rock	8/14 8/20	7	T31N, R12E, S31	Interior	C	20	X	34	Suppressed-Fireload in Mgt.Area-Retardant
110	Ditch Creek	8/14 8/16	3	T31N, R12E, S25	Interior	A	Spot	X	34	Suppressed-Fireload in Mgt.Area
113	Gateway	8/14 8/22	9	T34N, R14E, S35	Gateway Peaks	A	Spot	X	34	Suppressed-Fireload in Mgt.Area
117	Dead Elk #2	8/24 8/26	3	T34N, R15E, S25	Bitterroot Div.	A	Spot	X	34	Suppressed-Reg.OFC Ban
118	Wahoo	8/24 10/26	64	T32N, R15E, S19	Interior	E	870	X		Suppressed-Reg.OFC Ban Surveillance-Manned and then demanned. Retardant
119	Moose Lake	8/24 10/12	50	T33N, R16E, S 8	Bitterroot Div.	E	525	X	34	Suppressed-Reg.OFC Ban Surveillance-Manned and then demanned. Retardant.
120	Elk Ridge	8/24 8/27	4	T32N, R14E, S36	Bitterroot Div.	A	Spot	X	34	Suppressed-RO Ban
121	Squaw #2	8/24 10/12	50	T32N, R15E, S 6	Bitterroot Div.	E	875	X	34	Suppressed-RO Ban. Surveillance-Manned and then demanned.
122	Wahoo Peak	8/24 8/28	5	T33N, R14E, S25	Bitterroot Div.	C	12	X	34	Suppressed-RO Ban. Retardant.
123	Squaw #3	8/24 8/27	4	T32N, R14E, S11	Bitterroot Div.	A	Spot	X	34	Suppressed-RO Ban
124	Cox Saddle	8/24 10/12	50	T33N, R15E, S 4	Bitterroot Div.	F	1000	X	34	Suppressed-RO Ban. Surveillance-Manned and then demanned.
125	Cox Creek #1	8/24 10/12	50	T34N, R15E, S34	Bitterroot Div.			X	34	Burned together w/Cox Saddle. Suppression action was taken.
126	Cox Creek #2	8/24 10/12	50	T34N, R15E, S32	Bitterroot Div.			X	34	Burned together w/Cox Saddle. Suppression action was taken.
127	Battle Ridge	8/24 8/30	7	T33N, R15E, S 7	Bitterroot Div.	C	20	X	34	Suppressed-RO Ban
128	Goat Lake	8/24 10/12	50	T34N, R15E, S30	Bitterroot Div.	C	25	X	34	Suppressed-RO Ban. Surveillance.

MOOSE CREEK FIRES 1981

S.O. #	Fire Name	Date Start Out		Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status Pres. Wild		ERC @ Start	Remarks
142	Granite Lake	8/24	10/12	50	T32N, R15E, S 2	Bitterroot Div. A	Spot			X	34	Suppressed-RO Ban. Surveillance.
143	Bear Creek	8/24	8/31	8	T32N, R14E, S22	Interior	B	.5		X	34	Suppressed-RO Ban
144	Pettibone Creek	8/24	8/30	7	T32N, R14E, S20	Interior	B	.5		X	34	Suppressed-RO Ban
145	Wahoo Pass	8/24	8/30	7	T33N, R15E, S36	Bitterroot Div. A	Spot			X	34	Suppressed-RO Ban
146	Lost Fire	8/24	8/29	6	T33N, R15E, S36	Bitterroot Div. A	Spot			X	34	Suppressed-RO Ban
147	Cox Creek #4	8/24	10/12	50	T34N, R15E, S32	Bitterroot Div. C	20		X		34	Went out
155	Crow #2	8/15	8/16	2	T31N, R13E, S24	Interior	A	Spot		X	34	Suppressed-Fireload in Mgt.Area
156	Goat #2	8/14	8/21	8	T34N, R15E, S19	Bitterroot Div. B	1			X	34	Suppressed-Fireload in Mgt.Area
157	Squaw #1	8/24	10/12	50	T32N, R14E, S 1					X	34	Burned together w/ Squaw #2

11 Prescribed Fires 4360 Acres
53 Wildfires 5073 Acres

MOOSE CREEK FIRES 1982

S.O. #	Fire Name	Date Start Out		Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status Pres. Wild		ERC @ Start	Remarks
10	Halfway	6/21	7/16	26	T32N, R12E, S 8	Interior	A	Spot	X		25	Went out
11	Salmon Hole	6/22	6/30	9	T31N, R13E, S12	Interior	B	5	X		25	Went out
12	Crew Creek	6/23	7/16	24	T33N, R13E, S20	Interior	B	1	X		27	Went out
13	Pettibone	6/30	7/16	17	T31N, R13E, S12	Interior	A	Spot	X		17	Went out
16	Eagle Rock	7/1	7/16	16	T31N, R13E, S27	Interior	A	Spot	X		17	Went out
17	Fenn Mountain	7/25	9/8	46	T33N, R10E, S28	Crags	A	Spot	X		33	Went out
26	Sixty-Two	7/30	9/8	41	T33N, R11E, S14	Crags	A	Spot	X		35	Went out
45	Highline	8/9	9/8	31	T31N, R11E, S19	Bilk Mountain	A	Spot	X		28	Went out
63	Halfway #2	8/20	9/29	41	T33N, R12E, S29	Interior	B	4	X		32	Went out
64	Goat Ridge	8/20	9/8	20	T30N, R13E, S 5	Interior	A	Spot	X		32	Went out
65	Freeman	8/20	9/8	20	T32N, R14E, S 6	Interior	A	Spot	X		32	Went out
66	Elevator	8/20	9/29	41	T30N, R13E, S 3	Interior	C	80	X		32	Went out
97	Lizard	8/29	9/29	32	T34N, R11E, S34	Interior	A	Spot	X		30	Went out
14	Shissler	6/20	6/26	7	T33N, R12E, S27	Interior	A	Spot		X	26	Suppressed-Suppression Zone 6
32	Grouse Ridge	7/31	8/2	3	T29N, R12E, S 1	Archer Mountain	A	Spot		X	35	Suppressed-Boun.Zone
90	Copper	9/17	9/18	2	T31N, R10E, S36	Lower Selway	A	Spot		X	27	Suppressed-Per.Caused
94	Switch Back	9/18	9/21	4	T32N, R15E, S14	Bitterroot Div.	A	Spot		X	26	Suppressed-Per.Caused
98	Big Creek	9/25	9/26	2	T33N, R15E, S21	Bitterroot Div.	A	Spot		X	21	Suppressed-Per.Caused
13 Prescribed Fires							90 Acres					
5 Wildfires							0 Acres					

MOOSE CREEK FIRES 1983

S.O. #	Fire Name	Date		Duration (days)	Location	Fire Mgt. Zone	Size	Acres	Status		ERC @ Start	Remarks
		Start	Out						Pres.	Wild		
7	Ghost Mountain	7/18	8/9	23	T33N, R 9E, S33	Crags	A	Spot	X		21	Went out
13	Shasta Point	7/19	8/9	22	T33N, R12E, S 3	Interior	A	Spot	X		14	Went out
22	Lone Pine Point	8/4	9/4	32	T32N, R12E, S30	Interior	A	Spot	X		30	Went out
23	Doe Lake Creek	8/4	8/26	23	T32N, R11E, S21	Interior	A	Spot	X		30	Went out
26	Highline	8/4	8/26	23	T31N, R11E, S19	Bilk Mountain	A	Spot	X		30	Went out
45	Squaw	8/7	8/26	20	T30N, R14E, S 1	Bitterroot Div.	A	Spot	X		30	Went out
46	Fitting	8/7	9/20	45	T33N, R13E, S20	Interior	A	Spot	X		30	Went out
61	Pettibone	8/24	9/4	12	T32N, R14E, S29	Interior	A	Spot	X		26	Went out
64	Hell Creek	8/31	9/14	15	T32N, R13E, S18	Interior	A	Spot	X		28	Went out
67	Granite	8/31	9/19	29	T32N, R15E, S20	Bitterroot Div.	B	1	X		28	Went out
66	Otter Creek	8/22	8/27	6	T31N, R10E, S10	Lower Selway	B	.5		X	27	Suppressed-Boun.Zone
60	Cascade	8/24	10/11	49	T32N, R10E, S25	Interior	E	640	X	X	26	Exceeded Prescription-Surveillance
56	Shissler	8/15	8/17	3	T33N, R12E, S34	Interior	A	Spot		X	26	Suppressed-Suppression Zone 6

10 Prescribed Fires 1 Acre
3 Wildfires 641 Acres

FIRE BEHAVIOR REPORT

DISCOVERED BY _____ TIME _____ DATE _____

GEOGRAPHICAL LOCATION _____

LEGAL - T. _____ R. _____ S. _____ $\frac{1}{4}$ $\frac{1}{4}$ AZIMUTH _____

ALFA - Character of Fire

1. Smoldering
2. Creeping
3. Running
4. Crowning
5. Spotting

GOLF - Slope Exposure

1. North
2. South
3. East
4. West
5. Ridge Top

BRAVO - Estimated Size

1. Spot
2. $\frac{1}{4}$ to $\frac{1}{2}$ acre
3. $\frac{1}{2}$ to $\frac{3}{4}$ acre
4. 1 acre
5. 1 to 5 acres
6. 5 plus

HOTEL - Slope %

1. Flat
2. 0 - 20
3. 20 - 40
4. 40+

CHARLIE - Wind on Fire

1. None
2. 0 - 5
3. 5 - 20
4. 20+

INDIA - Position on Slope

1. Top
2. Upper 1/3
3. Middle 1/3
4. Lower 1/3
5. Bottom

JULIETT - # of Persons to Control

(give number)

KILO - Special Equipment Needs

1. Retardant
2. Pumper on Vehicle
3. Portable pump w/hose
4. Cat
5. Bucket (water close)
6. Chainsaw
- 7.

NOVEMBER - Special Information

WX Station	ERC	BI
------------	-----	----

FOXTROT - Adjacent Fuel

1. Grass
2. Brush
3. Re-prod
4. Scattered Timber
5. Heavy Timber
6. Logging Slash
7. Thinning Slash
8. Rock Slide

FIREFIGHTERS REPORT

NAME OF FIRE _____ OR NUMBER _____
LOCATION _____ T. _____ R. _____ SEC. _____
TIME OF ORIGIN _____ CAUSE _____

1. National Forest or State Land (circle One). _____
2. District _____ Date Fire Discovered _____
3. First Attack _____ Date _____ Hour _____
4. First Reinforcements _____ Date _____ Hour _____
5. Fire Controlled _____ Date _____ Hour _____
5. Fire Out _____ Date _____ Hour _____

3. First Attack (underline) - Dozer, Ground Tanker, Hand Tools, Jumpers, Rappellers, Air Tanker, Helicopter Tanker, Helicopter
No. of people _____

9. Type of Reinforcements: (Circle one of above). No. of people _____

1. Maximum number of personnel (up to control) _____

1. Wind Speed at Time of Attack: MPH _____ Gusty or Steady _____

2. Slope in Vicinity of Origin _____

3. Aspect: Circle one N E S W NE SE SW NW Bidston _____ E1 + _____

3. Aspect: Circle one N, E, S, W, NE, SE, SW, NW, Ridgetop, or Flat.
4. Elevation:

5. Cover Type: Enter the predominating cover type in the general area of the fire. Example: Timber (Douglas Fir), Brush, Grass, etc.

Type of Timber _____ Size _____ 0 - 5 inches DBH

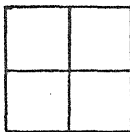
5 - 11 " "
11 - 21 " "
21 - Larger
Old Growth

5. Fuel Type: Use classification as to "Fate of Spread" and resistance to control. "Example: L,MM,HM,HE, etc. (E-extreme, H-High, M-Medium, & L-LOW)

7. As Burned

3. Identify point of origin on map below by X and enter section number at center of section. For class C & D fires, sketch identifying roads, topography, etc. and perimeter of fire.

Scale: 1 inch = 1 mile



9. Reason for suppression:

[illegible]

[illegible]